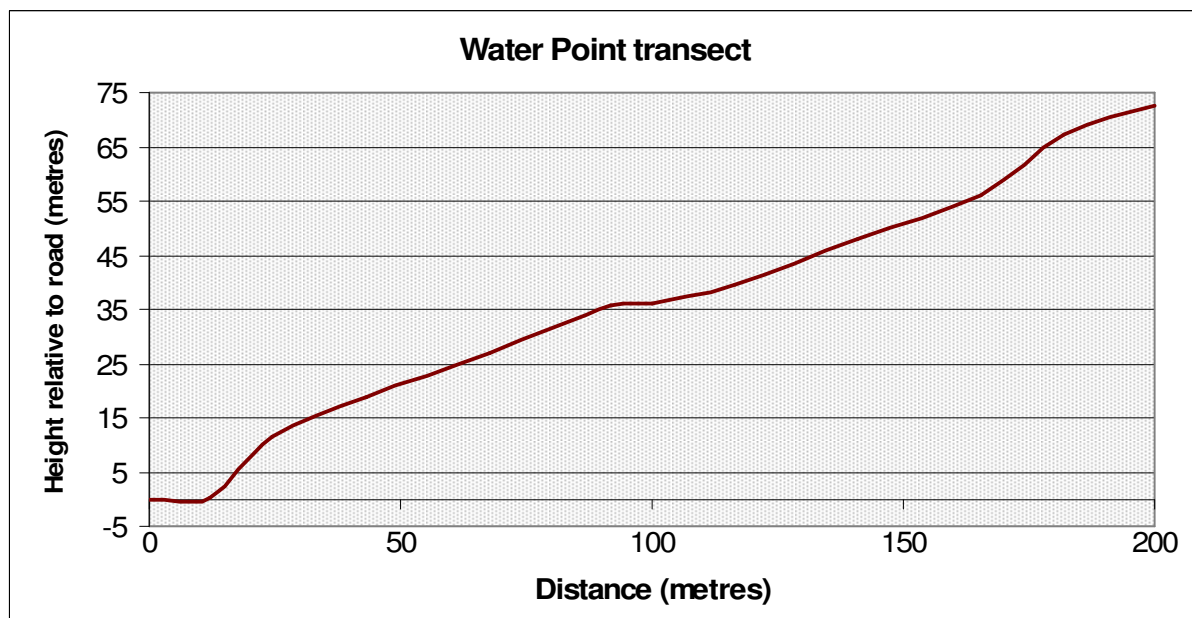
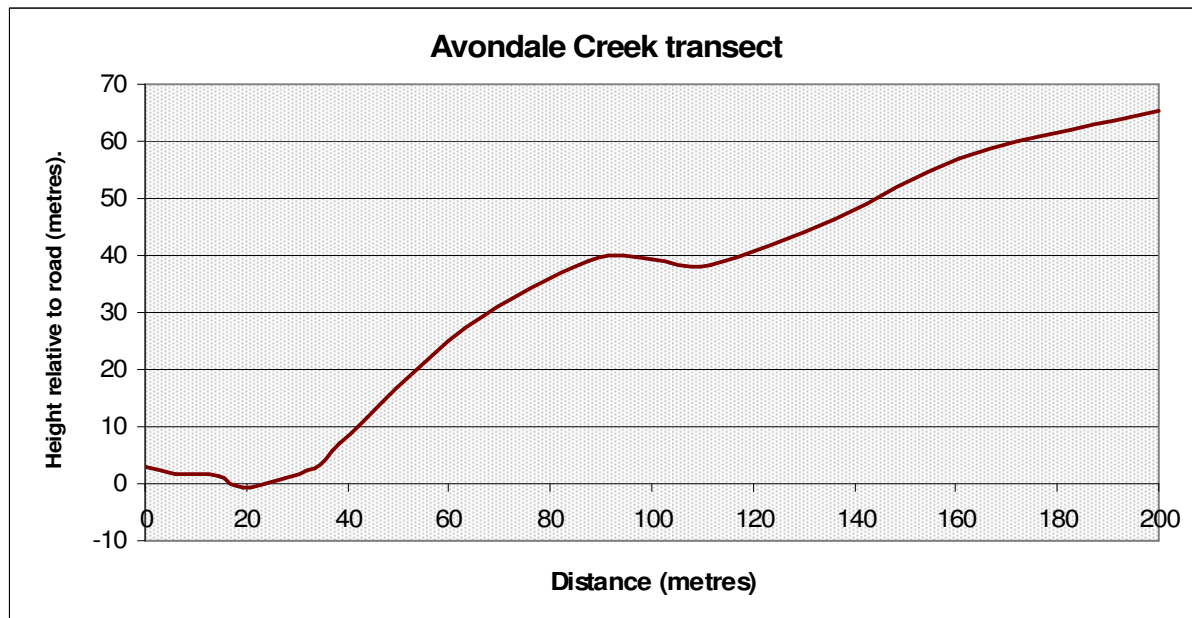


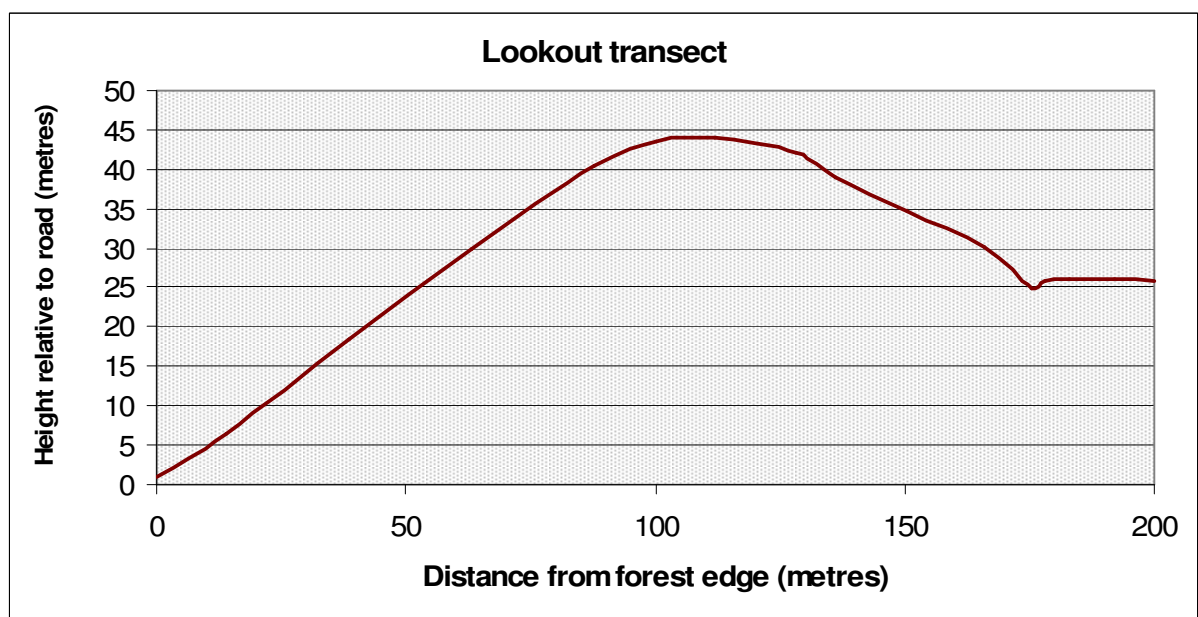
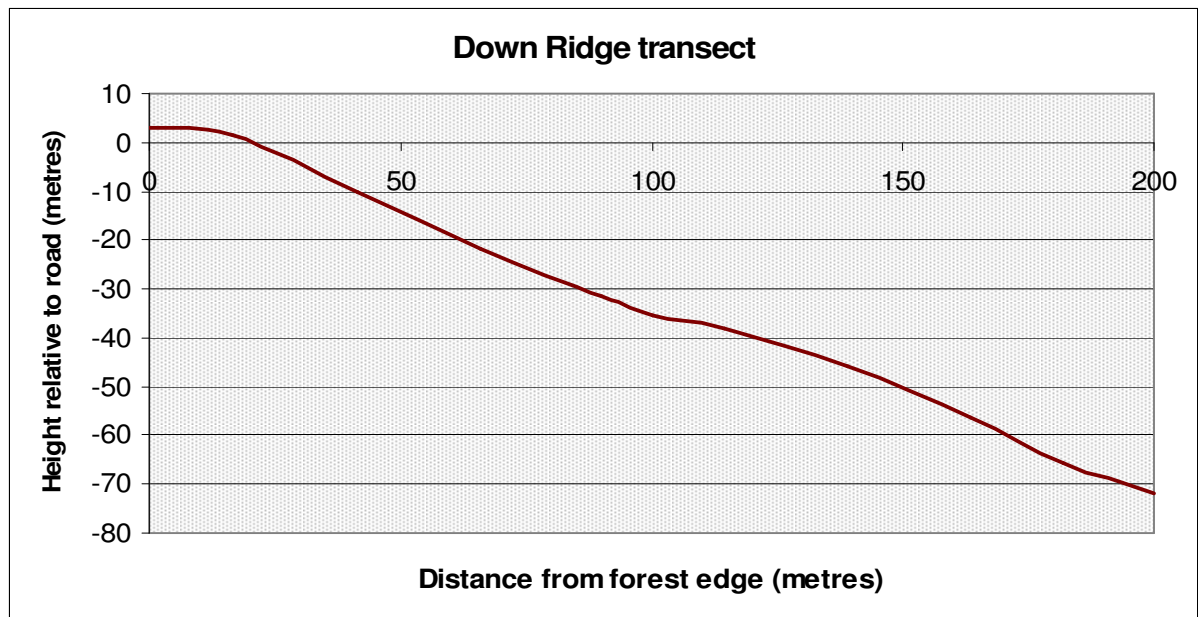
# **Noise Disturbance along Highways**

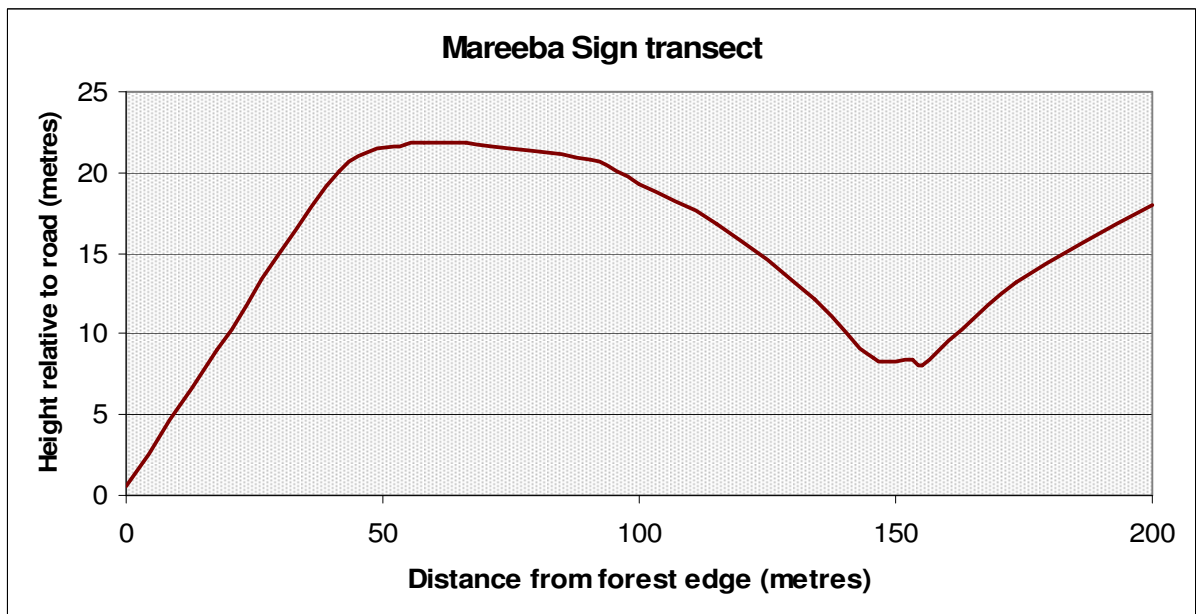
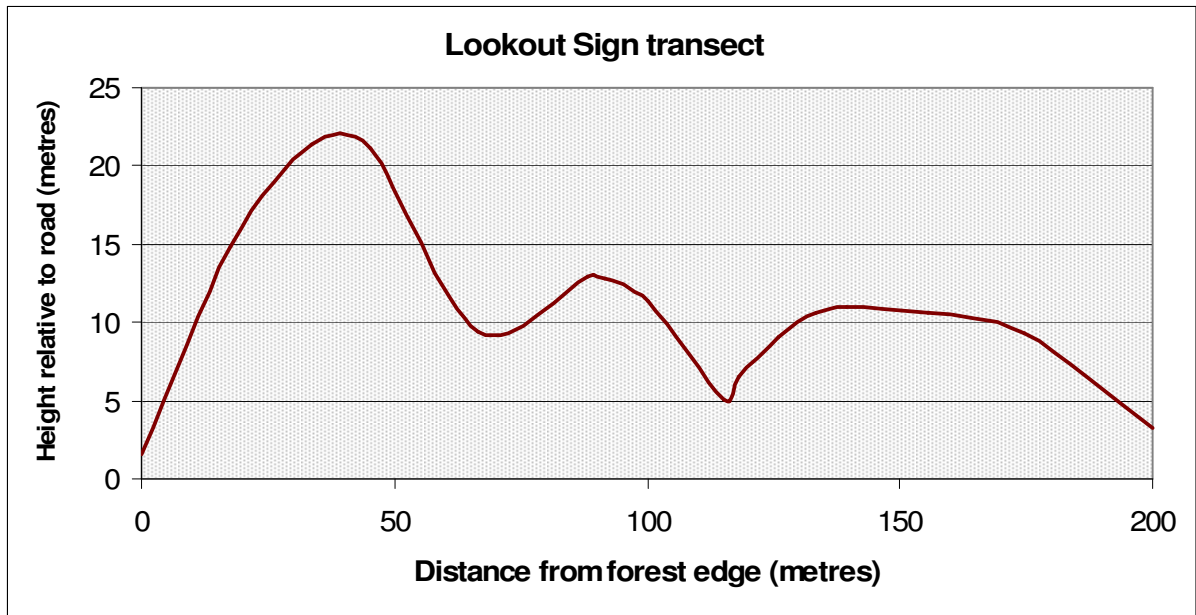
**Appendix: Section 2  
Traffic noise propagation  
through montane rainforest**

## Appendix 2.1 – 2005 Noise Transect Profiles

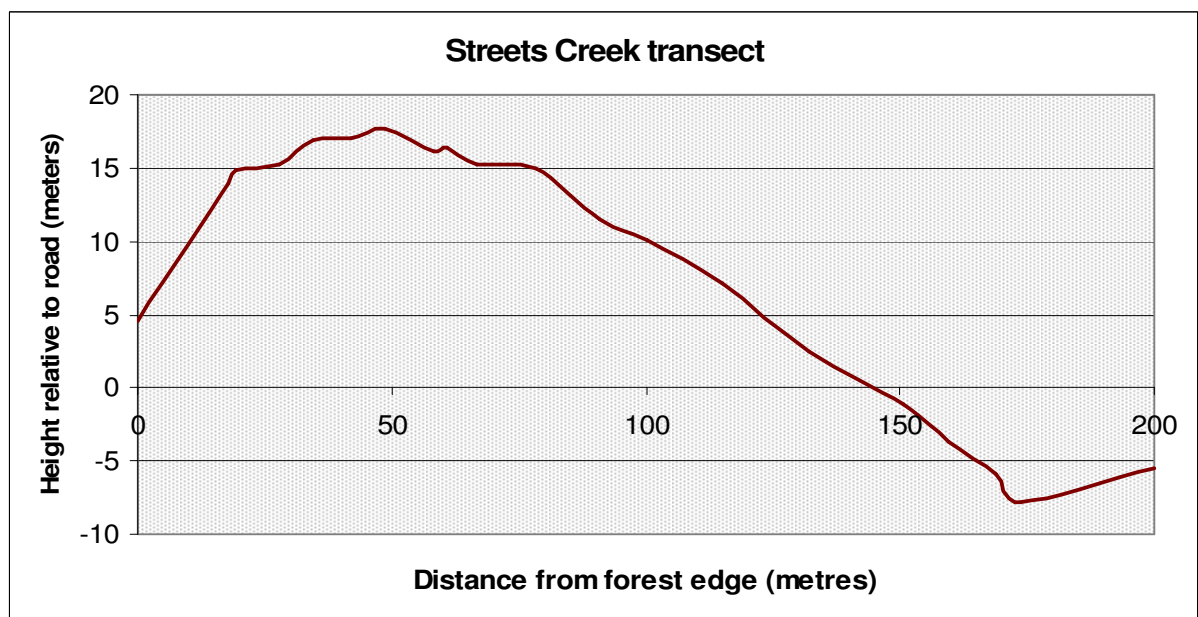
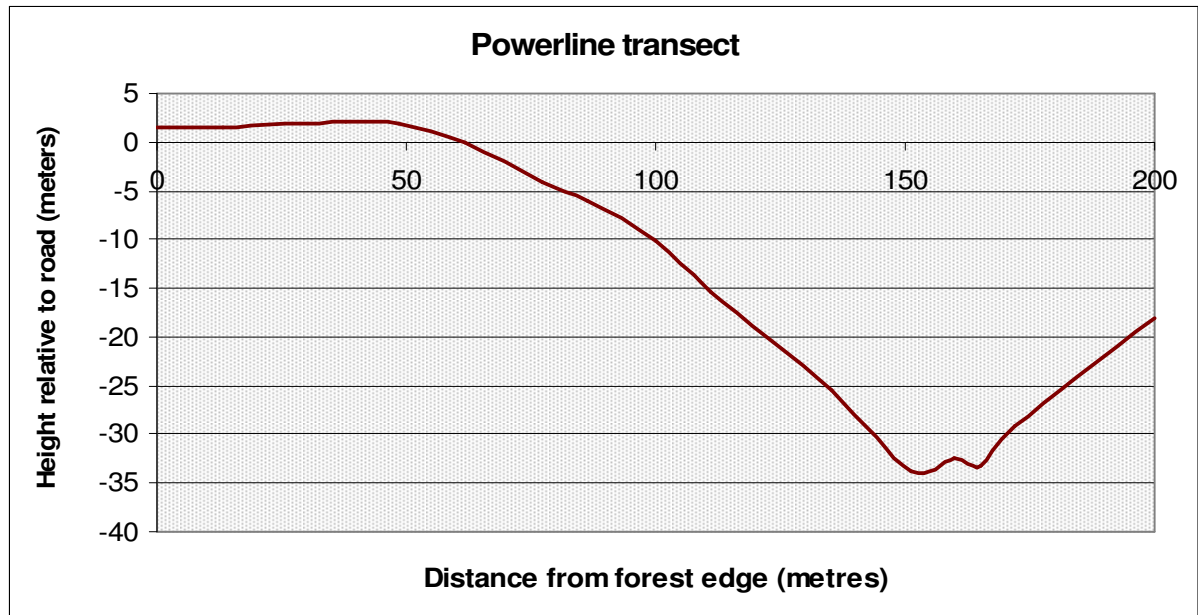
Heights and distances are taken from QDMR contour maps and profiles data, adjusted to local site data obtained using trigonometrical calculations from levels and distances obtained by hip-chain, laser rangefinders and GPS during pedestrian surveys of the sites.





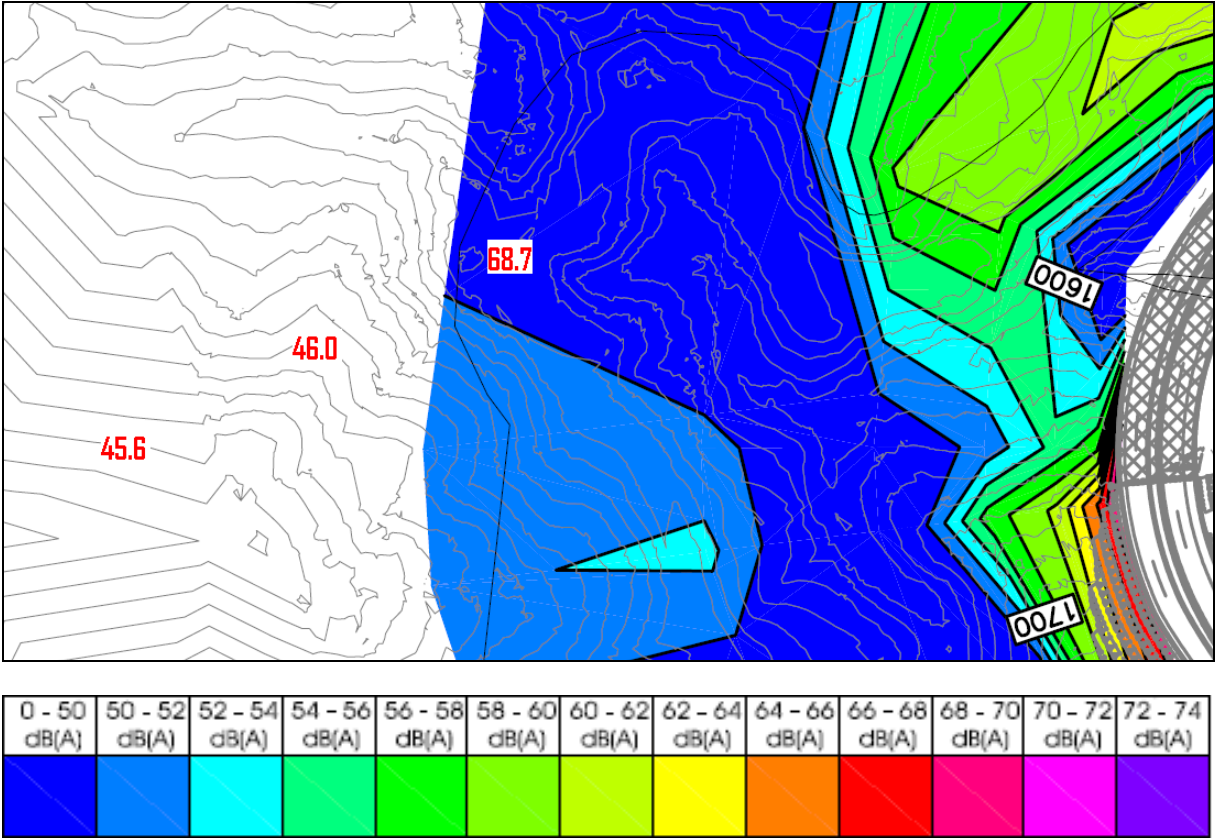




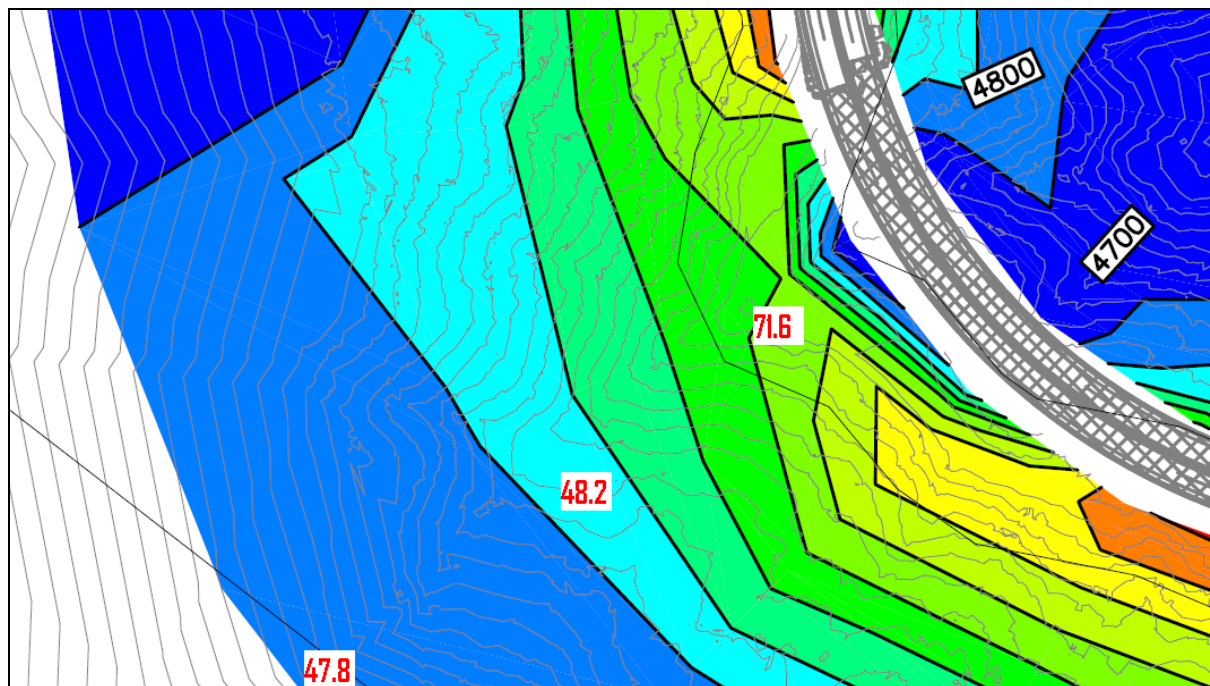


## Appendix 2.2 – Modelled and existing noise

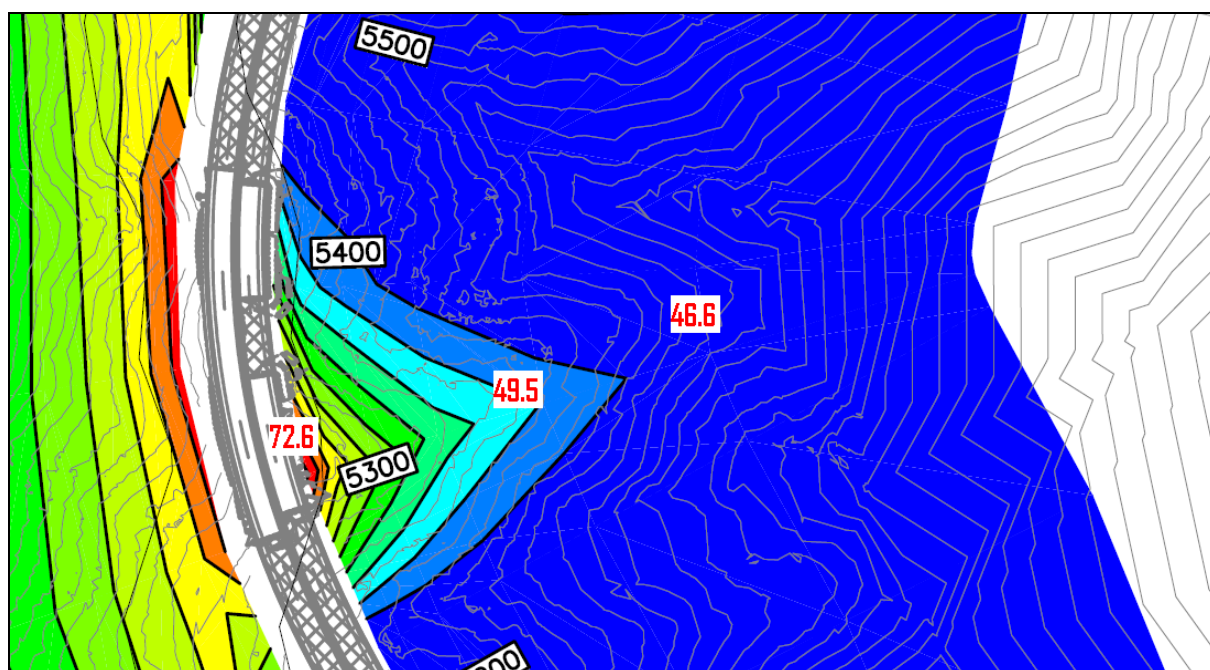
Modelling of ‘Ultimate’ predicted  $L_{10}$  ground noise levels for the upgraded Kuranda Range Road adjacent to sites of 2005 noise data collection (centre of inserts indicate ground noise levels from Rainforest CRC 2005 field recordings). All maps are displayed ‘north up’. Transect traverse distances are two hundred metres.



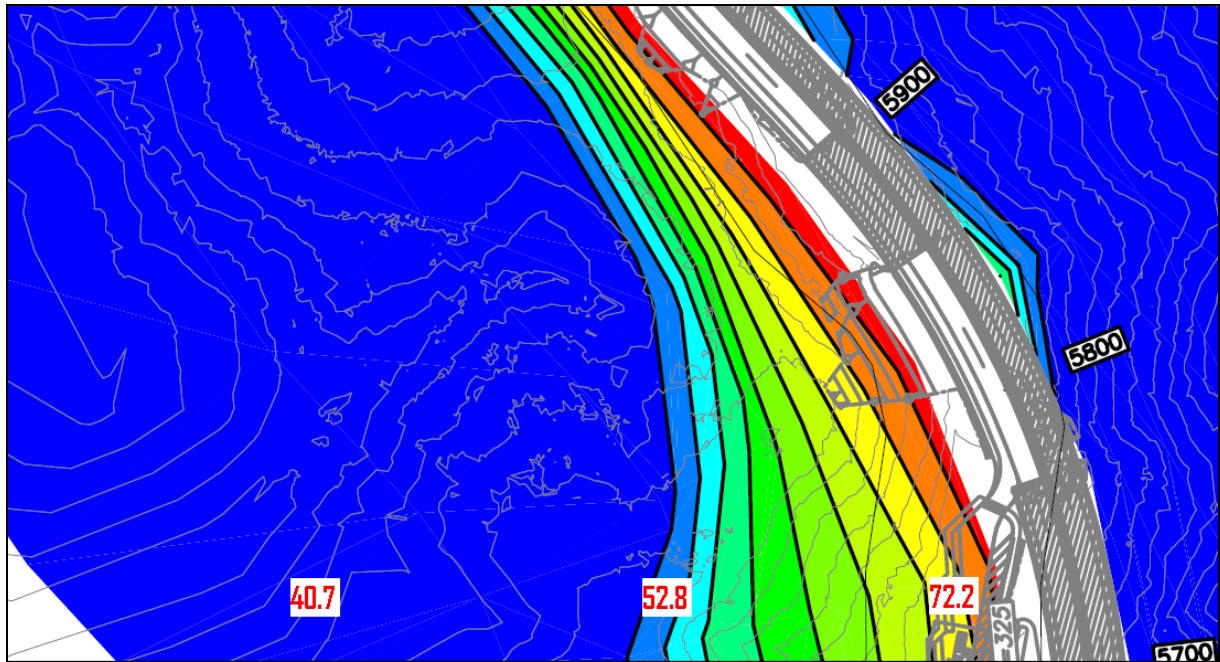
**Figure A2.2.1:** Avondale Creek transect  $L_{10}$  current and predicted noise levels at one metre above the forest floor (modified from ASK Consulting Engineers 2867FIGA, C6, 2006).



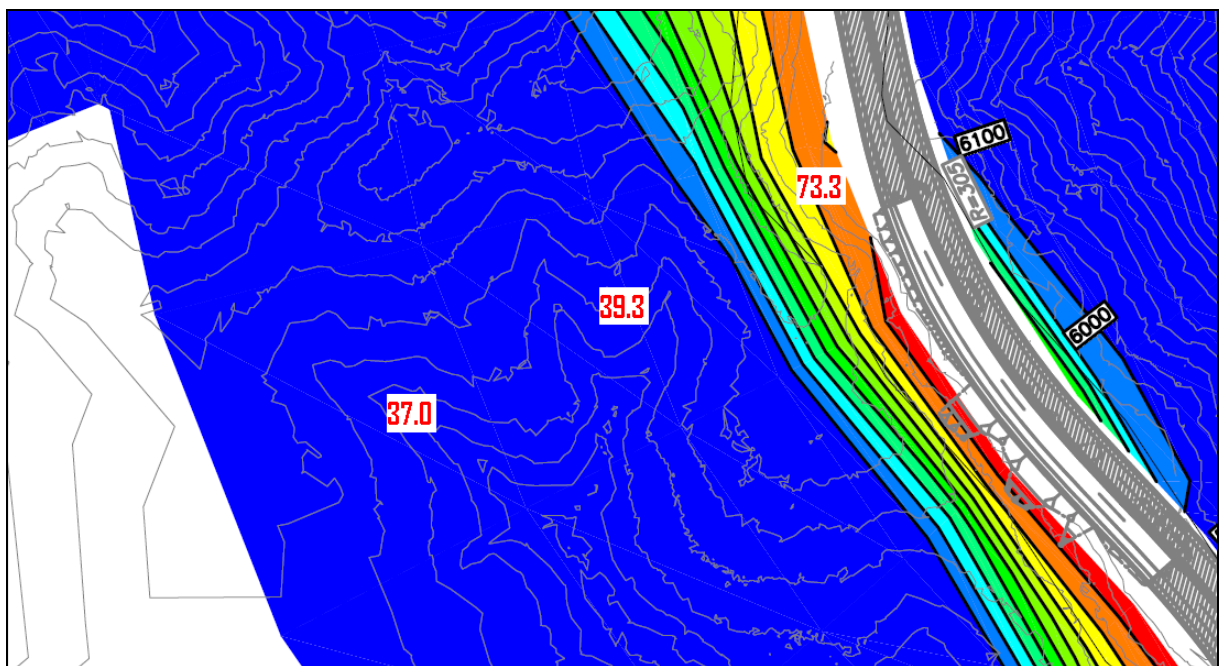
**Figure A2.2.2:** Water Point transect  $L_{10}$  current and predicted noise levels at one metre above the forest floor (modified from ASK Consulting Engineers 2867FIGA, C6, 2006).



**Figure A2.2.3:** Down Ridge transect  $L_{10}$  current and predicted noise levels at one metre above the forest floor (modified from ASK Consulting Engineers 2867FIGA, C6, 2006).

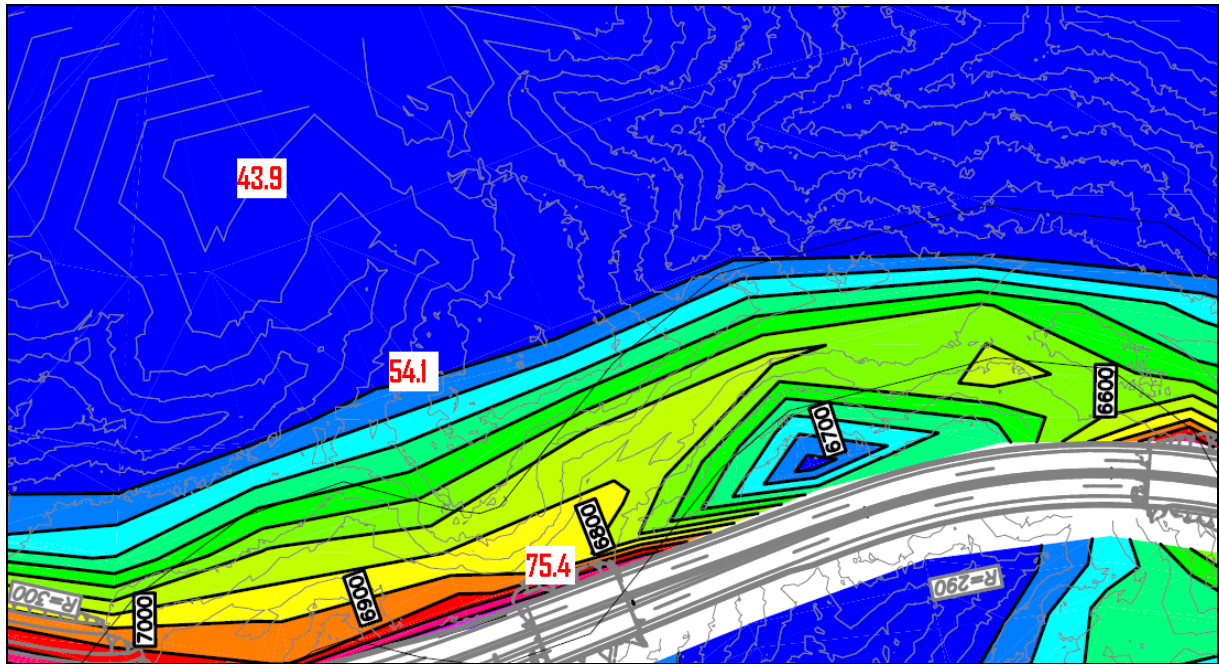


**Figure A2.2.4:** Lookout transect  $L_{10}$  current and predicted noise levels at one metre above the forest floor (modified from ASK Consulting Engineers 2867FIGA, C6, 2006).

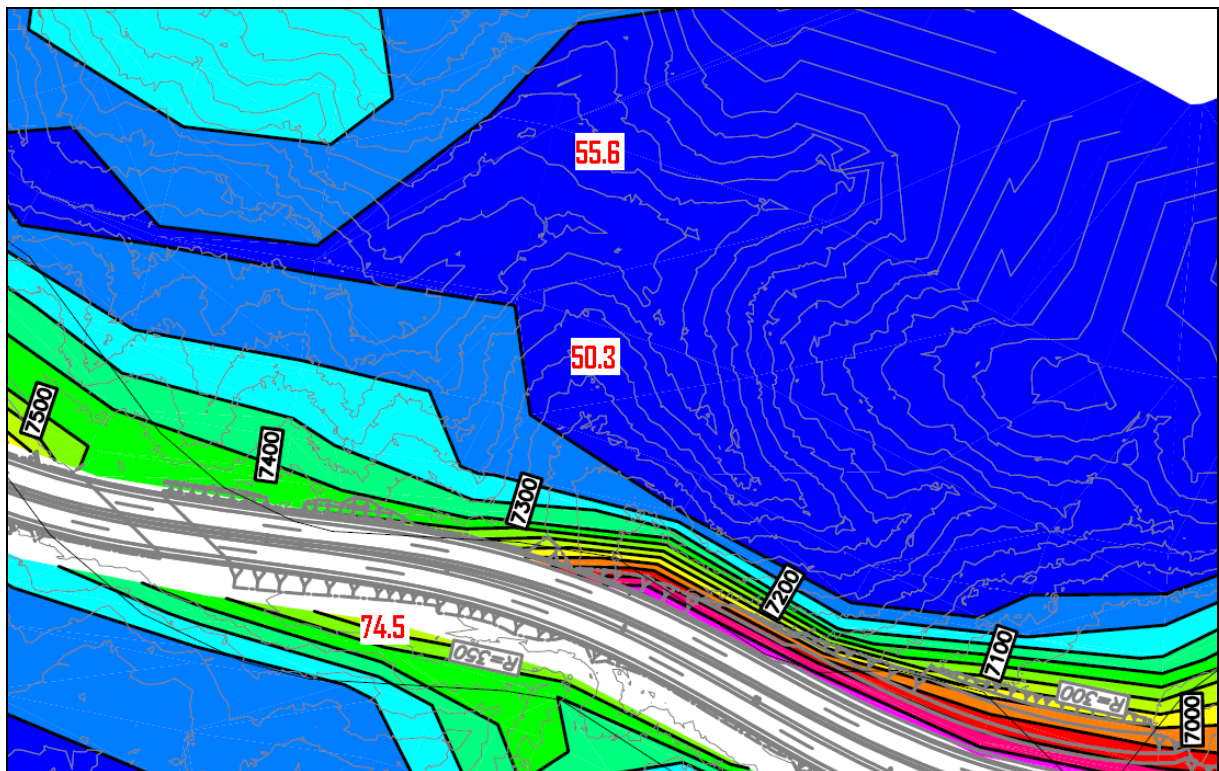


**Figure A2.2.5:** Lookout Sign transect  $L_{10}$  current and predicted noise levels at one metre above the forest floor (modified from ASK Consulting Engineers 2867FIGA, C6, 2006).

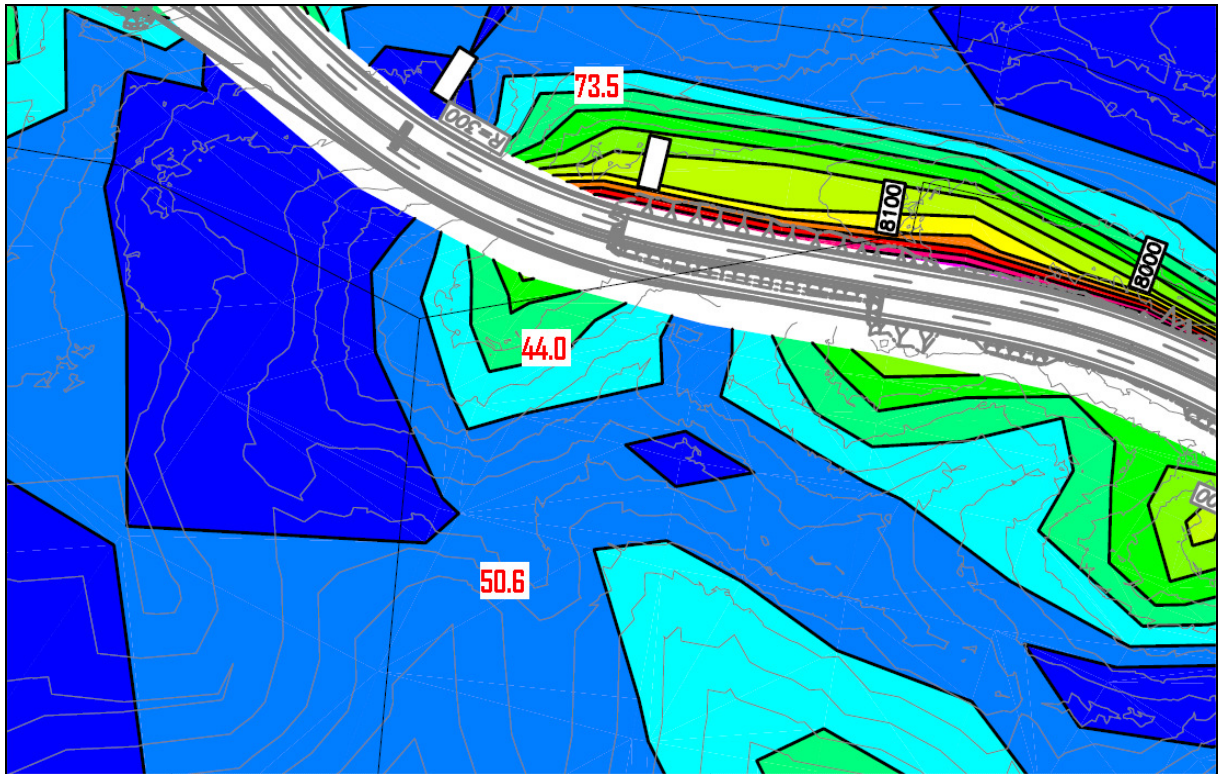




**Figure A2.2.6:** Mareeba Sign transect L<sub>10</sub> current and predicted noise levels at one metre above the forest floor (modified from ASK Consulting Engineers 2867FIGA, C6, 2006).



**Figure A2.2.7:** Powerline transect L<sub>10</sub> current and predicted noise levels at one metre above the forest floor (modified from ASK Consulting Engineers 2867FIGA, C6, 2006). Edge recordings undertaken at opposite side of existing road from transect start to eliminate risk posed by high voltage hazard during canopy recordings.

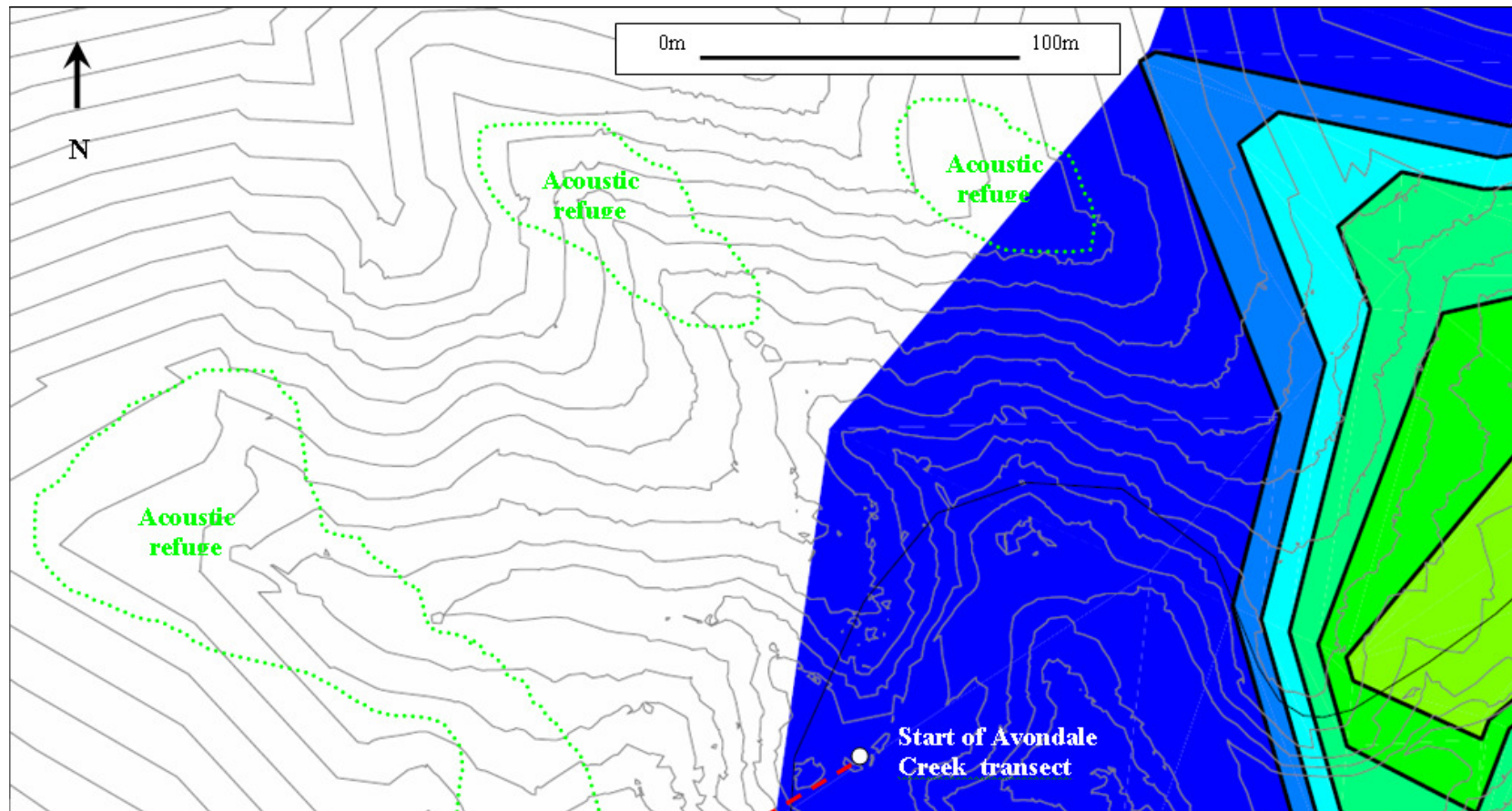


**Figure A2.2.8:** Streets Creek transect  $L_{10}$  current and predicted noise levels at one metre above the forest floor (modified from ASK Consulting Engineers 2867FIGA, C6, 2006).

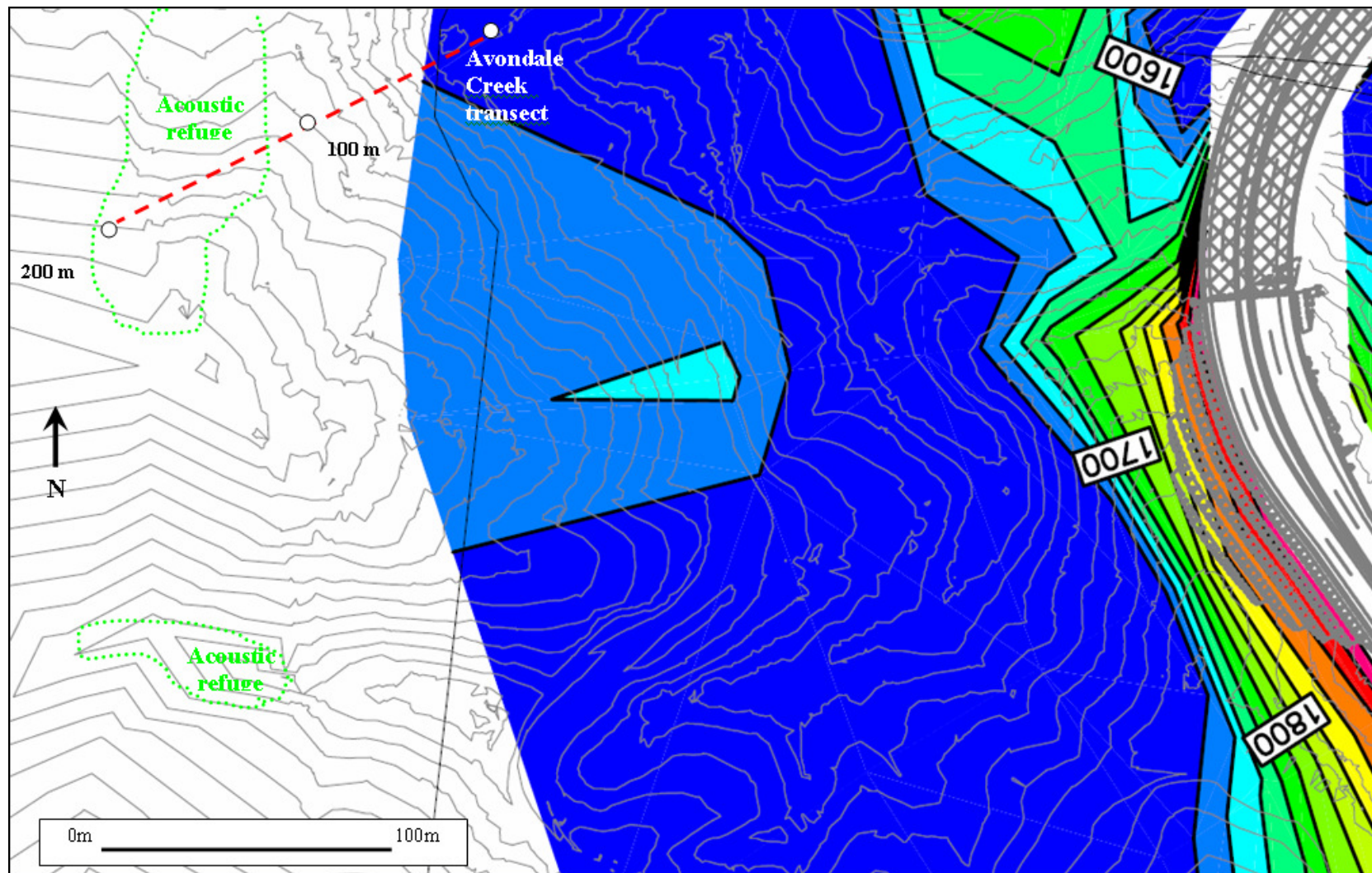


## Appendix 2.3 – Existing refugia locations

Potential locations of existing acoustic refugia and predicted 'Ultimate' ground  $L_{10}$  noise levels along the upgraded Kuranda Range Road (refugia boundary indicated by dotted green line).

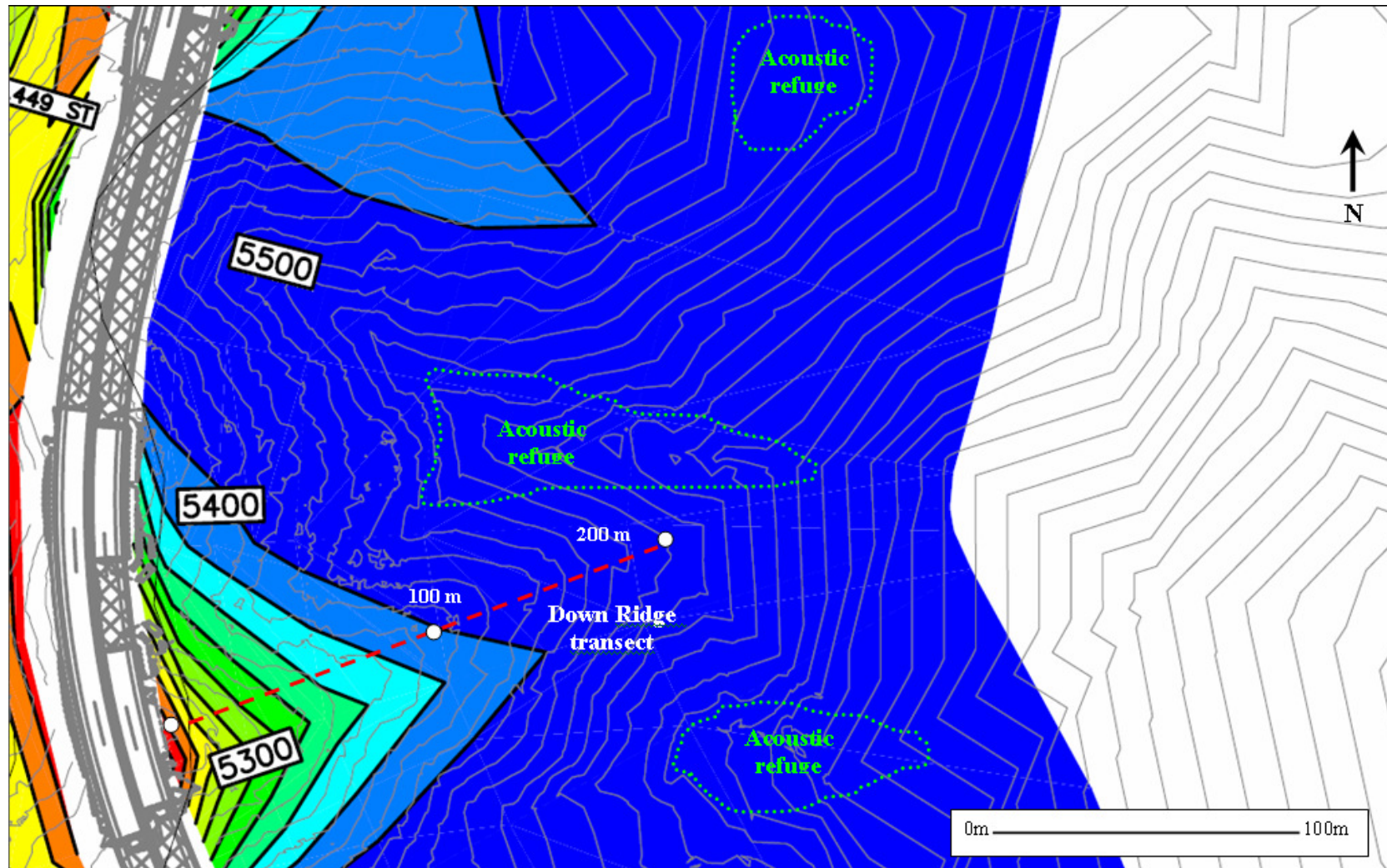


**Figure A2.3.1:** Acoustic refugia north of Avondale Creek transect (modified from ASK Consulting Engineers 2867FIGA, C11, 2003).

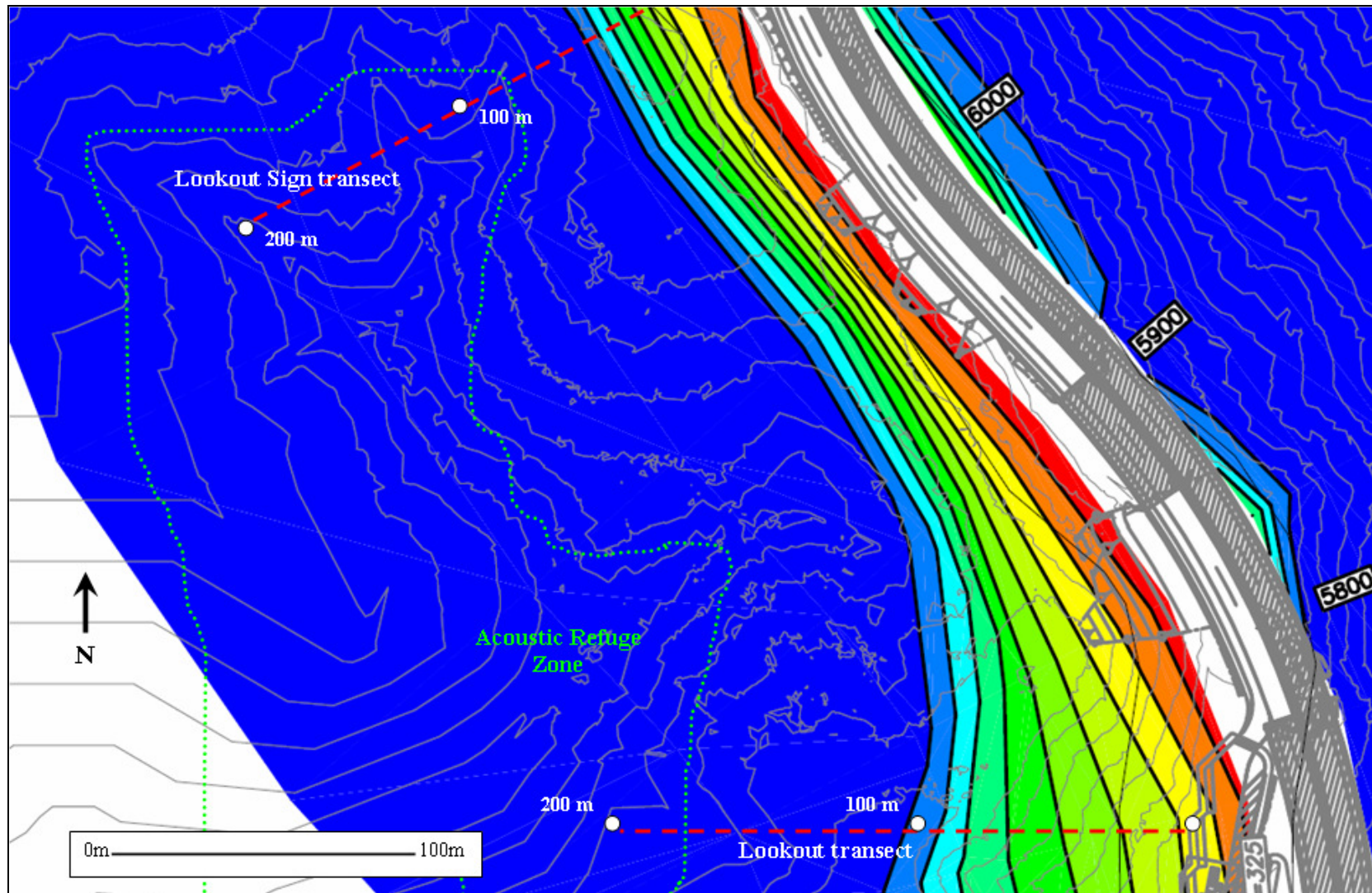


**Figure A2.3.2:** Acoustic refugia proximate to Avondale Creek transect (modified from ASK Consulting Engineers 2867FIGA, C11, 2003).



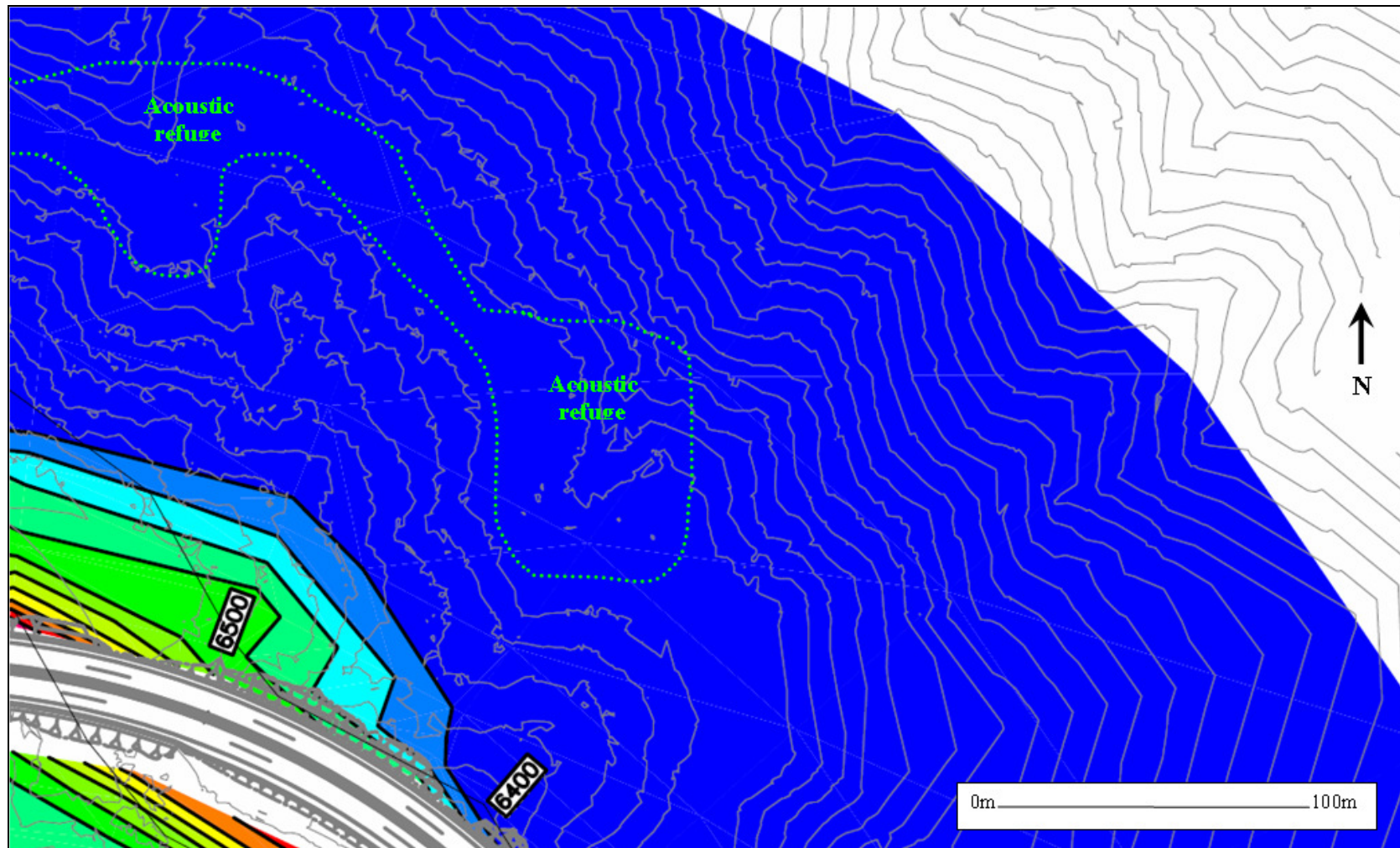


**Figure A2.3.3:** Acoustic refugia proximate to Down Ridge transect (modified from ASK Consulting Engineers 2867FIGA, C8, 2003).

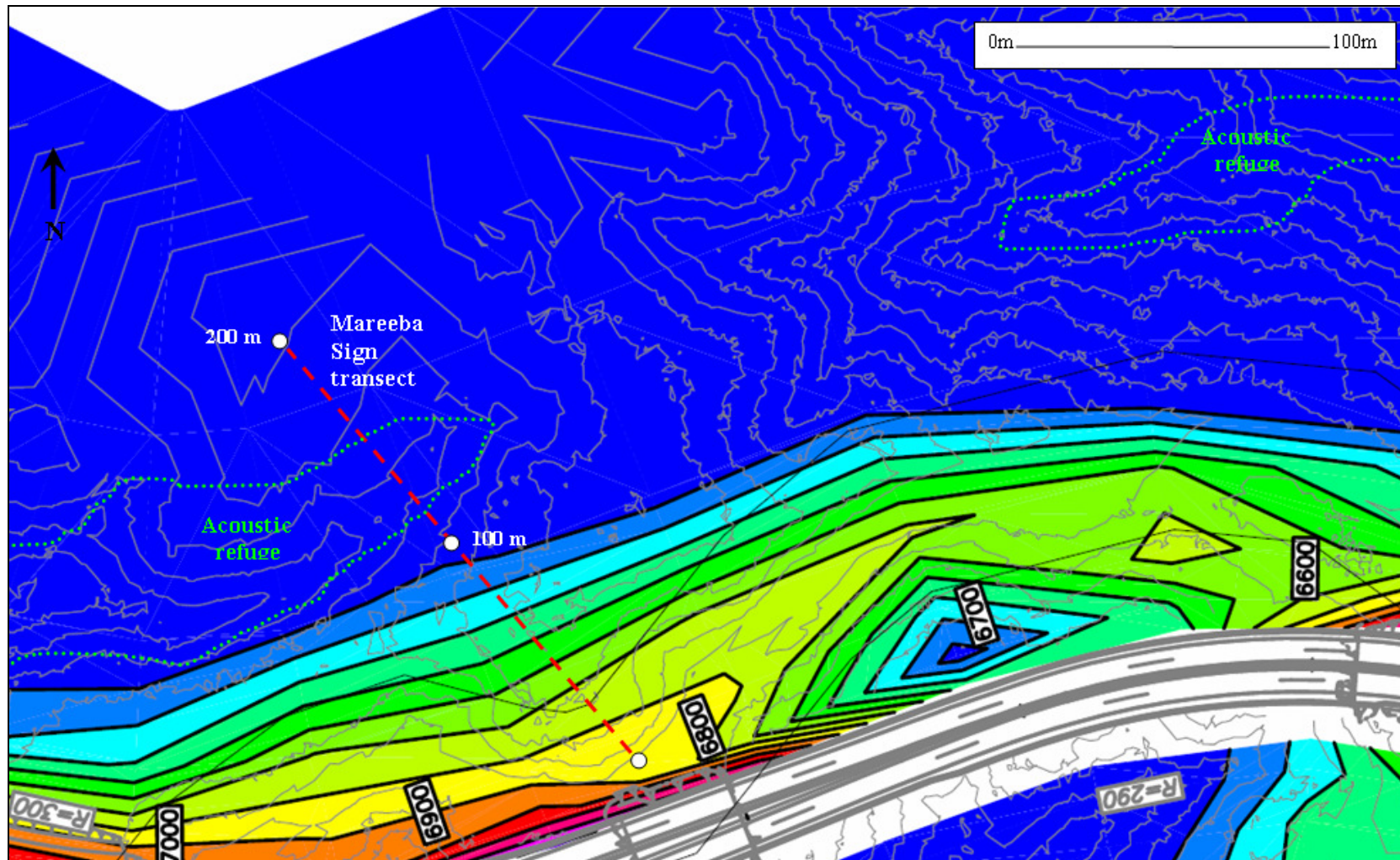


**Figure A2.3.4:** Acoustic refugia between Lookout and Lookout Sign transects (modified from ASK Consulting Engineers 2867FIGA, C7, 2003).



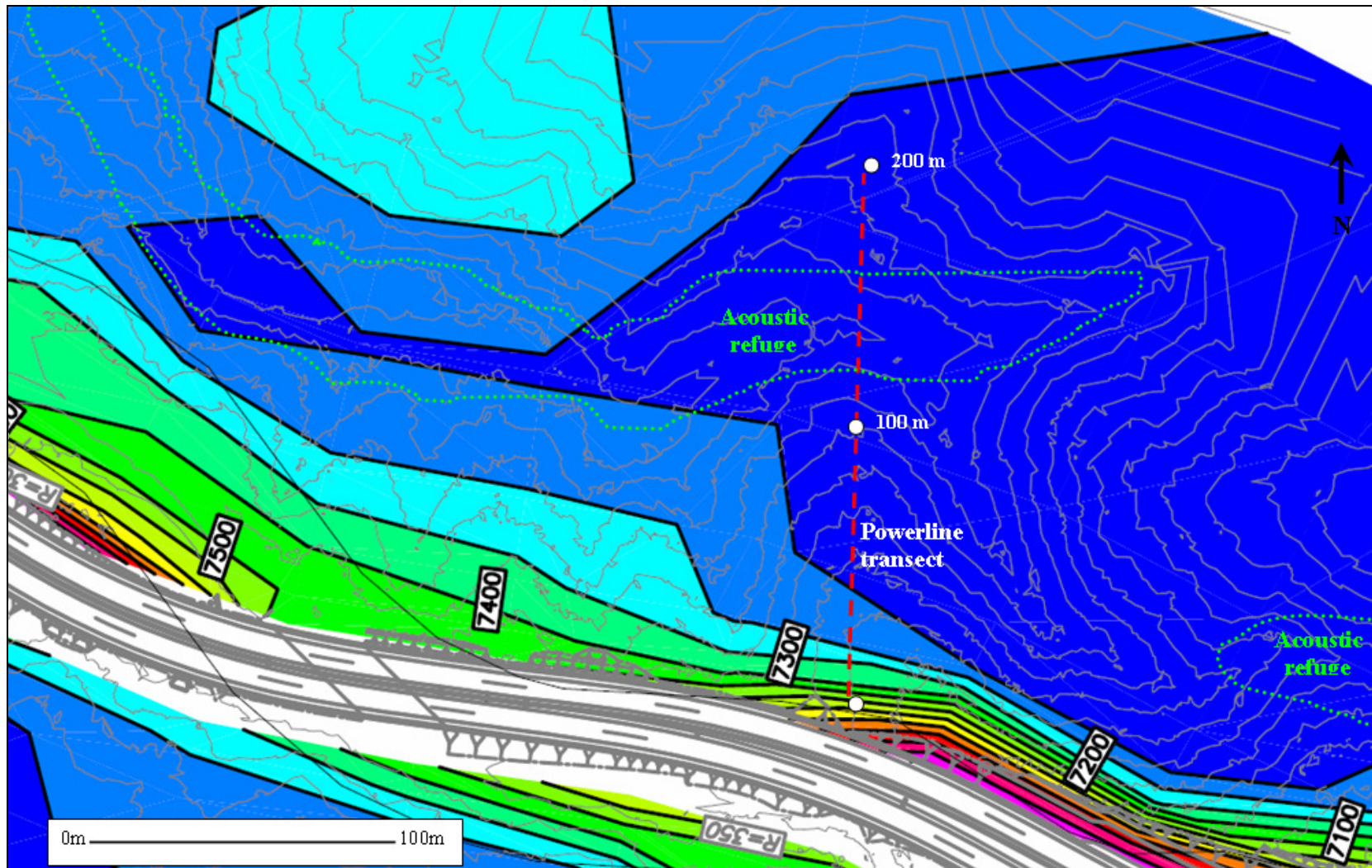


**Figure A2.3.5:** Acoustic refugia adjacent to Kuranda Range Road, north-south Ridge crossing (modified from ASK Consulting Engineers 2867FIGA, C6, 2003).

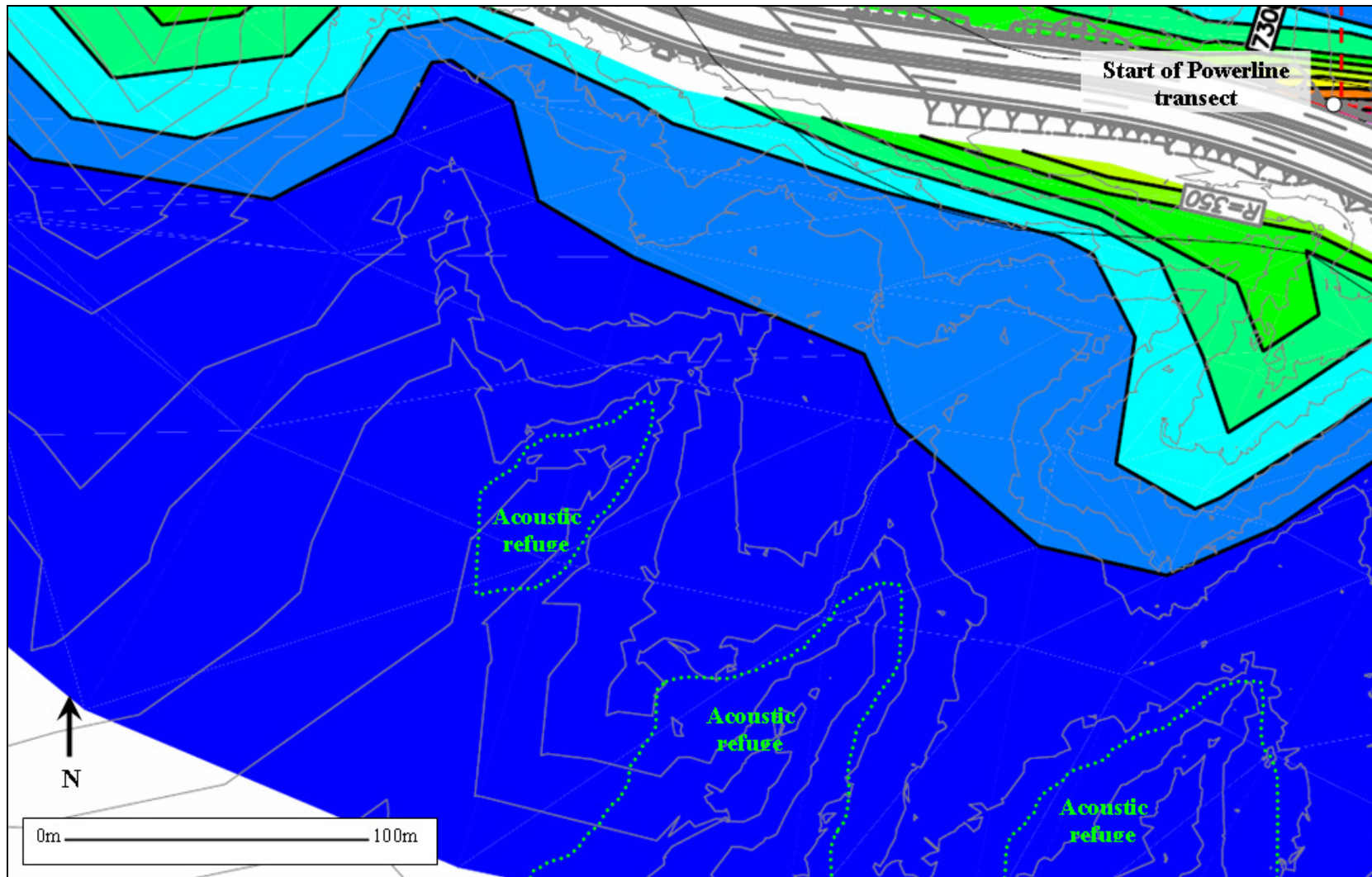


**Figure A2.3.6:** Acoustic refugia adjacent to Kuranda Range Road, north-south ridge, Macalister Range, (modified from ASK Consulting Engineers 2867FIGA, C6, 2003).



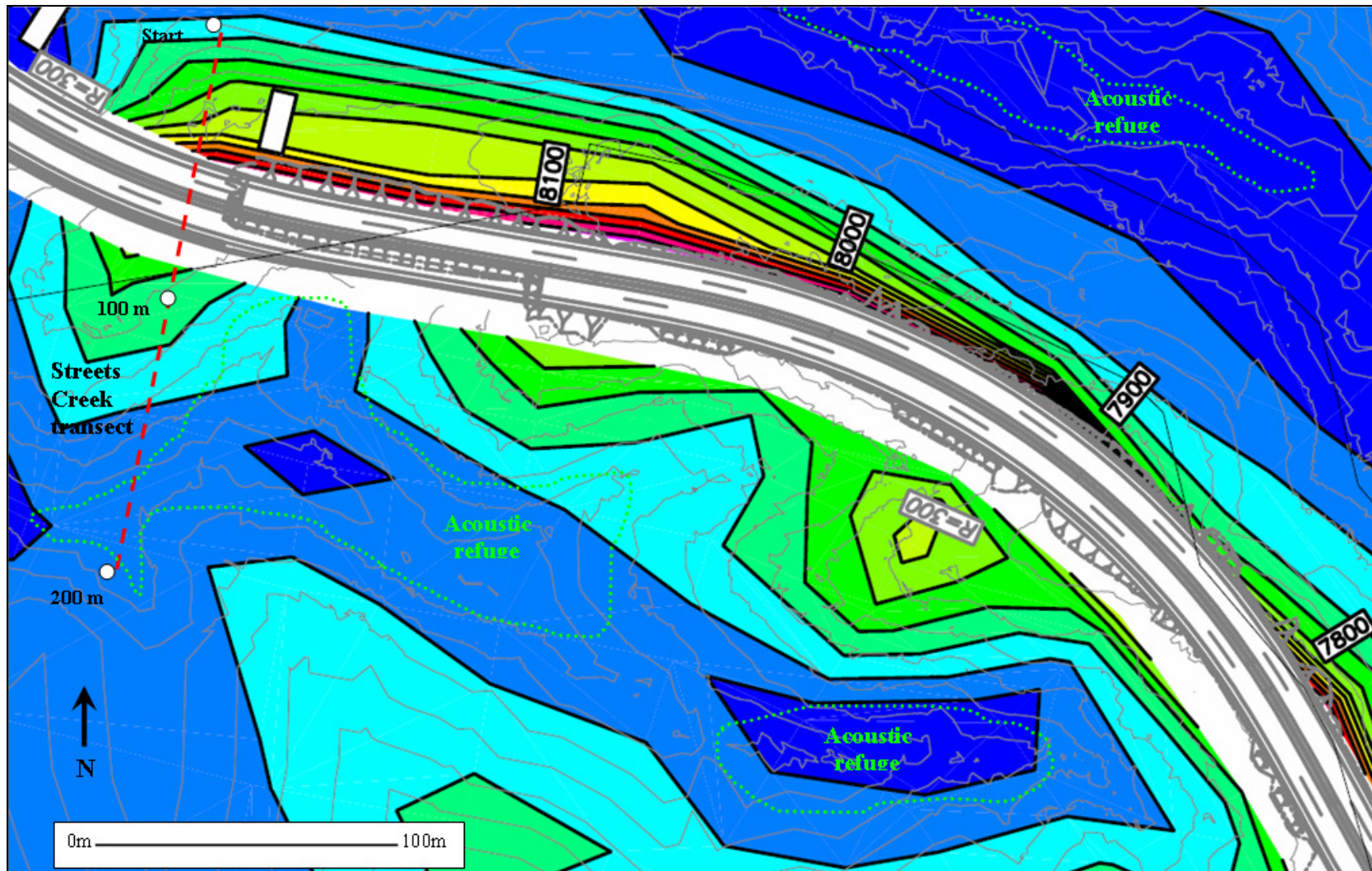


**Figure A2.3.7:** Acoustic refugia adjacent to Powerline transect, Kuranda Range Road (modified from ASK Consulting Engineers 2867FIGA, C5, 2003).



**Figure A2.3.8:** Acoustic refugia opposite Powerline transect, Kuranda Range Road (modified from ASK Consulting Engineers 2867FIGA, C5, 2003).





**Figure A2.3.9:** Acoustic refugia, Streets Creek area, Kuranda Range Road (modified from ASK Consulting Engineers 2867FIGA, C5, 2003).



## Appendix 2.4 – Transect/highway edge photographs



**Figure A2.4.1:** Avondale Creek (AC) transect (starts behind Armco barrier near right traffic arrow). Photograph: Gregory Dawe, 2005.



**Figure A2.4.2:** Water Point (WP) transect (starts behind vehicle). Photograph: Gregory Dawe, 2005.





**Figure A2.4.3:** Down Ridge (DR) transect (starts behind 50 km/h sign). Photograph: Gregory Dawe, 2005.



**Figure A2.4.4:** Lookout (LO) transect (starts behind 'Form One Lane' sign at the rear right of this photograph). Photograph: Gregory Dawe, 2005.





**Figure A2.4.5:** Lookout Sign (LS) transect (transect ascent starts behind guidepost at centre rear of this photograph). Photograph: Gregory Dawe, 2005.



**Figure A2.4.6:** Mareeba Sign (MS) transect (starts behind guidepost at centre of photograph). Photograph: Gregory Dawe, 2005.



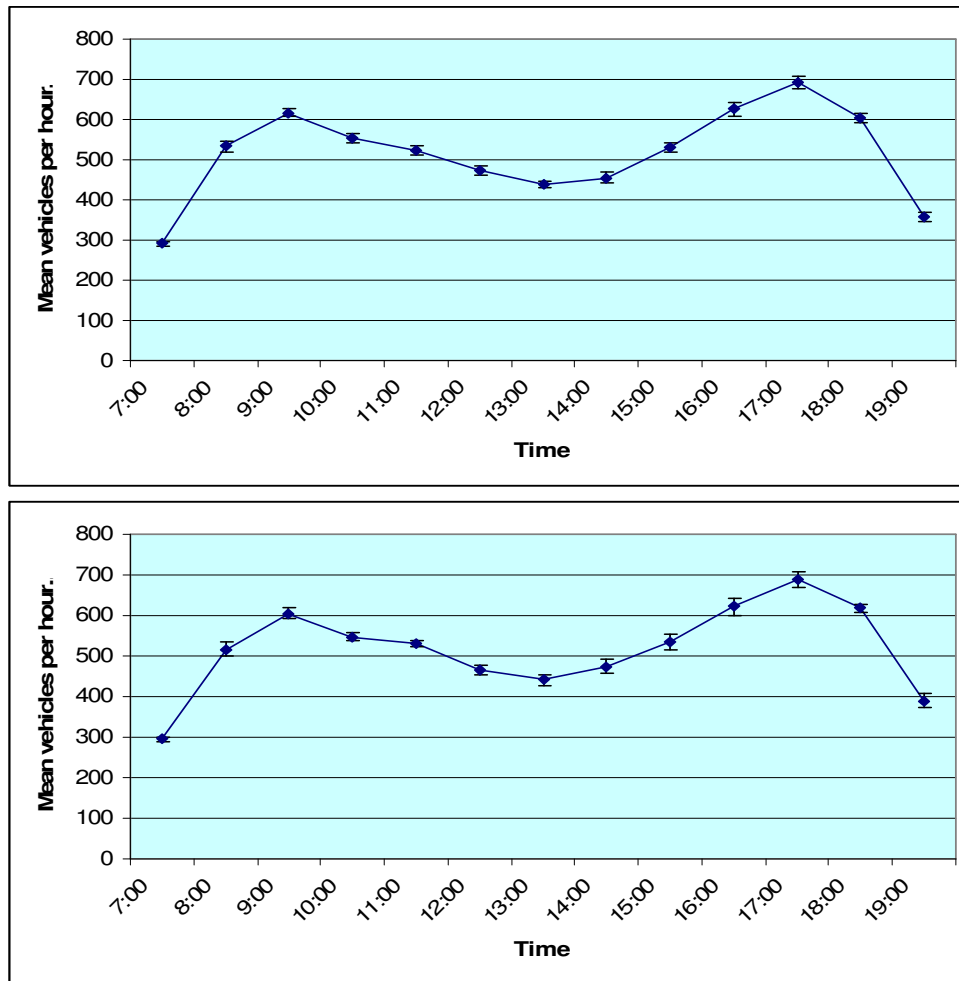


**Figure A2.4.7:** Powerline (PL) transect (starts to the left of 'Slippery When Wet' sign).  
**Note:** powerline above starting point. Photograph: Gregory Dawe, 2005.

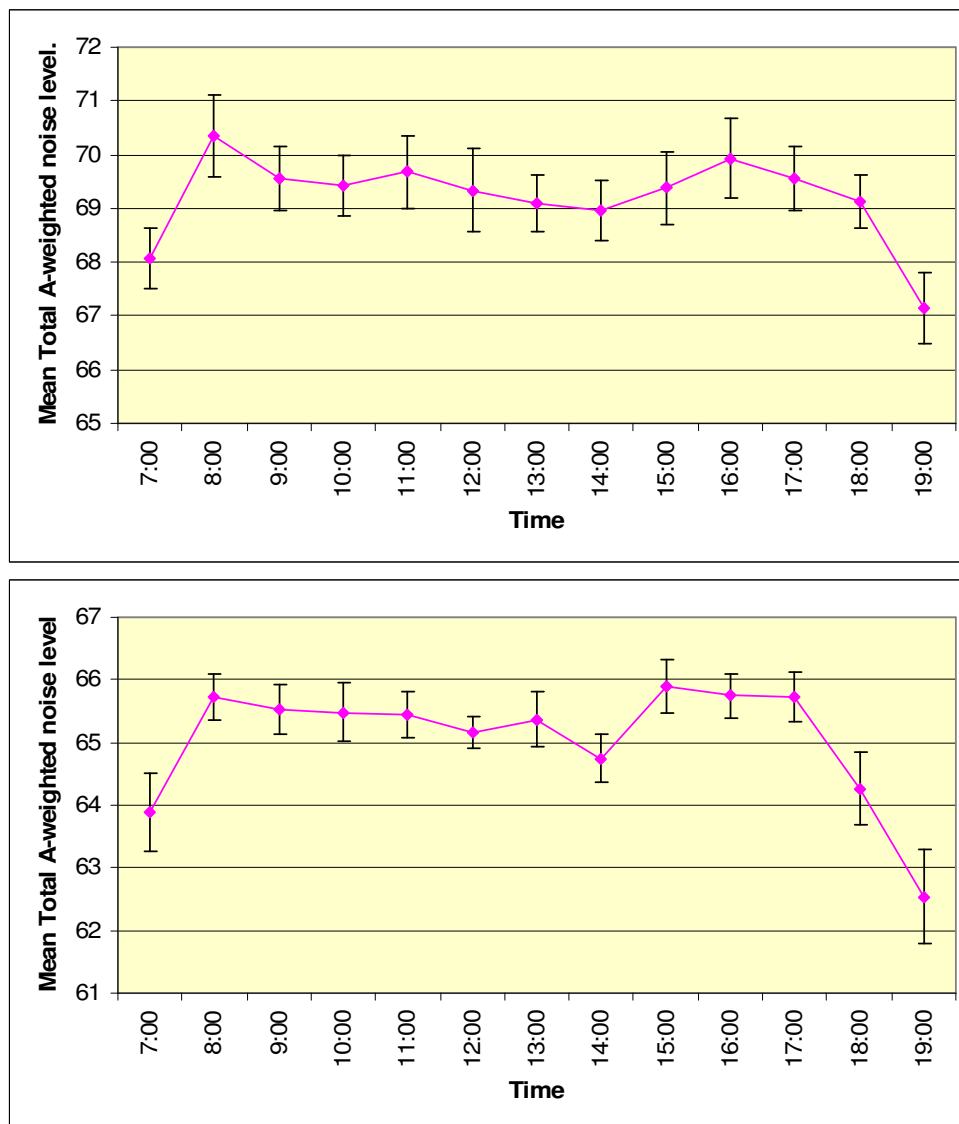


**Figure A2.4:** Streets Creek (SC) transect (starts behind caution sign past bridge).  
Photograph: Gregory Dawe, 2005.

## Appendix 2.5 – Diurnal noise levels / vehicle flow patterns



**Figure A.2.5.1:** Mean hourly traffic flows  $\pm 1$  SE corresponding to noise sampling for ground level (*top*) and lower canopy level (*bottom*).



**Figure A.2.5.2:** Mean hourly total A-weighted edge noise levels  $\pm 1$  SE for all transects at ground level (*top*) and in lower canopy (*bottom*).